Virginia Saltwater Development Fund
Evaluation of a Proposal for the Development of a Research or Data Collection Project

Project Number: 0606-11 **Date: 8/24/2006**

Title: K) A Genetic Assessment of the Potential for Local Depletion of Atlantic Menhaden (*Brevoortia tyrannus*) within Chesapeake Bay

> "The Virginia Saltwater Recreational Fishing Development Fund is to be used solely for the purpose of conserving and enhancing finfish taken by recreational anglers, enforcing laws related to natural resource conservation, improving recreational fishing opportunities, obtaining necessary data and conducting research for fisheries management, and creating or restoring habitat for species taken by recreational fishermen."
>
> Code of Virginia, Section 28.2-302.3

NOTE: Please read the entire scoresheet before beginning, then provide comments, and circle ( ) the appropriate score for each item. Thank You.

A. Problem Description and Resolution (20 points)

1. Comment on the adequacy of the problem description, background information, knowledge of available literature/data sources, and anticipated benefits.

The problem of genetic diversity, or lack of diversity, within the menhaden population along the coast and the genetic connectivity of the Chesapeake Bay "stock" with the overall population is well described. The investigators point out that "If menhaden have significant genetically-based stock structure, localized depletion resulting from intense fishing pressure may result in the loss of genetic variation." The proposal will attempt to highlight the degree of genetic diversity within the menhaden population, and that is its strong point. The extent (if any) of localized depletion will be determined by other studies, over the course of several years, and should there be a finding of localized depletion, the loss of genetic variation should be a concern., but the practicalities of using the genetic information to ameliorate the effects of fishing on the Chesapeake menhaden stock(s), if necessary (the investigators characterize a reduced Bay fishery, compared to the last decade), seems less certain.

The background information is very adequate to both describe the problem and provide information on life history aspects of menhaden and the dearth of genetic information on the population structure of menhaden, and this study would provide such needed information, especially given study hypotheses involving YOY, yearling and larval menhaden.

Clearly, the investigators are aware of the relevant literature, and some of the cited literature is that of the primary investigators.

Anticipated benefits of the study are characterized by the investigators as an opportunity to "evaluate the stock structure of menhaden within Chesapeake Bay and along the U.S. Atlantic coast." This benefit, alone, would be a significant event. Similarly, the investigators plan an extensive typing of the genetic diversity of several life stages, and that information could be a valuable tool to understand, and perhaps address the significant, recent lackluster recruitment of menhaden to age-1 abundance. No doubt, were there a valid finding of localized depletion of menhaden within the Chesapeake, this study findings could help guide corrective measures, but other factors, such as the existing effort and removals of the fisheries and mandated management may be more prominent.

2. Describe your views on the conceptual approach to solve the problem.

This is a carefully designed proposal, from sample collection to statistical analysis of results. The investigators will attempt to account for variability in both timing and distribution of the population, through conducting a multiyear sampling regime along the coast and by targeting different times for collecting samples in the Chesapeake to capture different stages of recruits. Again, the testable hypotheses designed by the investigators, concerning larval, young-of-year and age-1 menhaden indicate experience with planning such a study. The data analysis approach is formulated clearly and will rely on proven statistical methods and software programs.

SCORE (Circle one)	**Poor**				**Excellent**
	0	**5**	**10**	**15**	**(20)**

B. Soundness of Project Design/Technical Approach (25 points)

1. Is there sufficient information to technically evaluate the proposal?

Given the investigator's step-wise plan for addressing the problem(s), evaluation is enabled, even if some of the descriptions of the molecular analysis section are best understood by those familiar with the field. However, even this section appears to be included, as a representation of methodology that can be reproduced.

2. What are the strengths/weaknesses of the project design (thoroughness, practicality, methods, integration with other work, etc.)?

There are many strengths associated with the project design, as described in the conceptual approach (A. 2., above). Practicality of the project would seem to rest mainly with solving the extent of genetic similarities or differences in the genetic makeup of the menhaden population along the coast and, for multiple life stages, within the Chesapeake.

This is the strong component of the project and is backed up by the proposed analytical and statistical approaches.

SCORE (Circle One)	Poor				Excellent
	0	5	10	15	20 (25)

C. <u>Project Management and Experience/Qualifications of Personnel (15 points)</u>

What is your opinion of the experience and capabilities of the Principal Investigator(s) to manage and conduct the work, the availability of facilities, and education and experience of assisting personnel.

The primary investigators have indicated a proven expertise with the study methodologies (striped marlin as an example) and have extensive experience in stock discrimination techniques and analyses. The investigators have already lined up cooperation from other coastal entities to secure the necessary samples, outside of this area. Should the project be funded, that cooperative effort is already established. The facilities at VIMS have always been adequate for other genetic studies conducted by the primary investigators whose experience and capabilities are verified by numerous publications.

SCORE (Circle one)	Poor			Excellent
	0	5	10	(15)

D. <u>Project costs (15 points)</u>

Is the budget realistic and reasonable? Indicate any unreasonable costs.

It is not clear, as to what guidelines are used to make such a determination. It seems that a large portion of the request (RFAB share) would go towards salaries and fringe (56%). The indirect portion is just under 20% (of RFAB requested share), and that is much less than many investigators include in projects.

SCORE (circle One)	Poor			Excellent
	0	5	(10)	15

E. Value of the Project to Fisheries Managers (25 points)
Do you believe the results of this project will further management of the species described? Will the results be useful to managers?

This project can be viewed as satisfying the requirement of conducting research for management purposes, as it cannot be tied <u>directly</u> to other specified uses of

the saltwater license fund. Concerning management uses of this research, since there is little known about the genetic basis of menhaden along the Atlantic coast, this proposal offers a valuable opportunity. For several years, menhaden has been a high profile species in many management contexts (state, interstate and federal). Management efforts on behalf of other important finfish species are often stymied because of a lack of stock identification. At times, management leans on past tagging work to draw inferences about stock structure, but as these investigators point out tagging may provide information about movement of the population but cannot delineate the population into subunits or stocks. The stock identification possibilities, alone, make this a very worthy project. At the same time, should other studies determine there is localized depletion of menhaden within the Chesapeake results from this proposed study may help to guide management solutions, along with findings from other, different studies.

SCORE (circle one)	**Poor**					**Excellent**
	0	**5**	**10**	**15**	**(20)**	**25**

PLEASE ADD ANY FURTHER COMMENTS ON THE PROPOSALS BELOW: